

# Together With



SPRING 2008

A PUBLICATION OF THE TENNESSEE DEPARTMENT OF LABOR &amp; WORKFORCE DEVELOPMENT

**Organic Dust Fire and Explosion: Massachusetts (3 killed, 9 injured)**

**Organic Dust Fire and Explosion: North Carolina (6 killed, 38 injured)**

**Organic Dust Fire and Explosion: Kentucky (7 killed, 37 injured)**

**Metal Dust Fire and Explosion: Indiana (1 killed, 1 injured)**

## Combustible Dusts Pose Explosion Hazards

Certain combustible substances, when divided into a dust-like form and suspended in air, can become explosive. A combustible dust explosion hazard may exist in a variety of industries including food (for example, candy, sugar, spice, starch, flour and feed), grain, tobacco, plastics, wood, paper, pulp, rubber, furniture, textiles, pesticides, pharmaceuticals, dyes, coal, metals (for example, aluminum, chromium, iron, magnesium and zinc) and fossil fuel power generation. Combustible dust may have been a cause of an explosion at a Georgia sugar refinery plant.

"Fires and explosions resulting from combustible dust can pose a significant danger at the workplace."

U.S. Assistant Secretary for Occupational Safety and Health  
Edwin G. Foulke Jr.

The primary factor in an assessment of these hazards is whether the dust is in fact combustible. Any "material that will burn in air" in a solid form can be explosive when in a finely divided form. Different dusts of the same chemical material will have different ignitability and explosibility characteristics, depending upon many variables such as particle size, shape, and moisture content. Additionally, these variables can change while the material is passing through process equipment. Here are some recommendations for the control of dusts to prevent explosions.

Federal OSHA has a National Emphasis Program on combustible dusts. TOSHA may follow suit. For more information visit [www.osha.gov](http://www.osha.gov).



- ✓ Minimize the escape of dust from process equipment or ventilation systems;
- ✓ Use dust collection systems and filters;
- ✓ Utilize surfaces that minimize dust accumulation and facilitate cleaning;
- ✓ Provide access to all hidden areas to permit inspection;
- ✓ Inspect for dust residues in open and hidden areas, at regular intervals;
- ✓ Clean dust residues at regular intervals;
- ✓ Use cleaning methods that do not generate dust clouds, if ignition sources are present;
- ✓ Only use vacuum cleaners approved for dust collection;
- ✓ Locate relief valves away from dust hazard areas; and
- ✓ Develop and implement a hazardous dust inspection, testing, housekeeping, and control program (preferably in writing with established frequency and methods).



Together with TOSHA is the newsletter of the Division of Occupational Safety and Health.

James G. Neeley  
Commissioner

John Winkler  
TOSHA Administrator

220 French Landing Drive  
Nashville, TN 37243-1002

(615)741-2793  
FAX (615)741-3325

Accident Reporting  
1-800-249-8510  
TDD 1-800-475-1351

[www.tennessee.gov  
/labor-wfd](http://www.tennessee.gov/labor-wfd)

Editor Sandra Bennett  
Layout & Design  
Jeff Hentschel

Comments and suggestions are welcome.

Inquiries regarding Together With TOSHA should be directed to the TOSHA Division Training Section:  
(615)741-5726



Together with TOSHA is a quarterly publication of the Tennessee Department of Labor and Workforce Development, Authorization No. 337352; 19,300 copies; December 2007; \$0.14 per copy. The Tennessee Department of Labor and Workforce Development is committed to principles of equal opportunity, equal access, and affirmative action. Auxiliary aids and services are available upon request to individuals with disabilities.

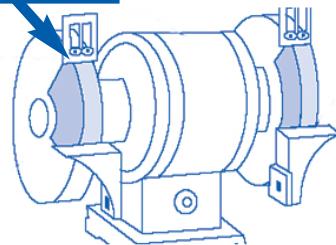
## Test Yourself

### Topic: Grinder Safety

The maximum distance in inches between a tongue guard and a grinding wheel:

- a. 2/3 inch
- b. 1/8 inch
- c. 3/4 inch
- d. 1/4 inch

Tongue Guard



2

Answer: d

## Hearing Conservation, Part 1

Every year, approximately 30 million people in the United States are occupationally exposed to hazardous noise. Fortunately, the incidence of noise-induced hearing loss can be reduced or eliminated through the successful application of engineering controls and hearing conservation programs. A hearing conservation program includes annual tests of exposed employees' hearing (audiometric testing), hearing protection, and training. The cornerstone of the program is the audiometric testing.

The purpose of an audiometric testing program is to find standard threshold shifts (STSs), which are 10 decibel hearing losses, to determine where the use of hearing protection is not effective and to allow the employer to take action to prevent the employee's hearing loss from getting worse. If an STS caused by occupational noise exposure is found during an audiometric test, it means that hearing protection is not working to conserve the employee's hearing. The employer must give written notice to the employee within 21 days of the determination. **The following follow-up actions are required to ensure that hearing protection usage will work to conserve the employee's hearing in the future:**

- ✓ If the employee is not already wearing hearing protection, he/she must be fitted with hearing protectors, trained in their use and care, and required to use them.
- ✓ If the employee was using hearing protection, he/she must be refitted and retrained in the use of hearing protectors and provided with protectors offering greater noise reduction if necessary (must attenuate noise to 85 dBa or below).

**There are normally three possible reasons why hearing protectors do not work to stop hearing loss. They are the following:**

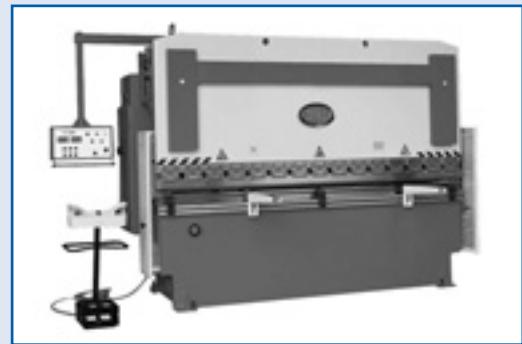
- ✓ The employee is not wearing the hearing protectors all the time that he/she is overexposed to noise (high noise areas);
- ✓ The employee is not wearing the hearing protectors properly, such as deep insert foam ear plugs worn not deeply inserted into the ear canal; and/or
- ✓ The hearing protection does not fit the employee's ear properly, allowing exposure to high levels of noise.

**Condition:** A press brake was not safeguarded at the point of operation to prevent the operator from having any part of the body in the danger zone during the operating cycle.

**Potential Effects:** Crushing injuries or amputation of hand or fingers, from contact with the point of operation.

**Standards:** 29 CFR 1910.212(a)(3)(ii)

**Recommended Action:** Install point-of-operation safeguarding such as presence-sensing units (photoelectric/radiofrequency), restraints (holdouts), pullouts, two hand controls or gate guards.



Until safeguarding can be installed on the press brake, for interim protection instruct the operator in the safe method of work and ensure through supervision that the operator follows correct operating procedures.

Instruction topics should include:

- Hazards of placing any body member within the point of operation.
- How and why to use operating controls, operating mode controls, die-space adjustment provisions, and any other brake controls.
- Hazards of piece-part bending including the part, the tooling (whip), and loading and unloading.
- Hazards and consequences of unsafe work practices such as inattention, horseplay, and misuse of equipment.
- How and why to use hand-feeding tools.
- How and why to immediately report that the press brake or an ordered operation using the press brake is unsafe.

When safeguarding has been installed, instruct the operator on how and why to use it.

## Congratulations to UT

The University of Tennessee has been selected as one of The OSHA Training Institute's Education Centers. The Institute is OSHA's primary source for providing safety and health training courses and seminars. It offers a variety of basic, intermediate, and advanced programs designed for OSHA Federal and state personnel. The OTI Education Centers offer similar training to the private sector by offering 30 OSHA courses and seminars, many of which are online. They receive no funding from OSHA and sustain their program through charging tuition and fees. OTI provides course materials and program oversight and guidance.

### OTI Education Centers in the southeast are:

Eastern Kentucky University, Richmond, KY  
Georgia Tech Research Institute, Atlanta, GA  
University of Alabama, Tuscaloosa, AL  
University of South Florida, Tampa, FL  
A consortium comprised of:

North Carolina State University, Raleigh, NC  
University of Tennessee, Knoxville, TN



There are a total of 26 OTI Education Centers, comprised of 45 member organizations across the country. For a complete list visit [www.osha.gov](http://www.osha.gov) and click on the Training link. Look for additional information on courses offered in the state by UT as they get their program going.

# LEARN & LIVE

## A TOSHA Case File Summary

A 54-year-old worker was killed while loading large concrete blocks onto a truck. The blocks were being loaded using a John Deere loader with a chain sling specifically designed for the task. Nine concrete blocks measuring two feet by two feet by four feet (2x2x4) each had been loaded onto a trailer. On top of the 2x2x4 blocks was placed one two feet by two feet by six feet (2x2x6) block. At the time of the fatality, the workers were attempting to position a second 2x2x6 block, and as they did so it became skewed from its proper alignment with the 2x2x4 block below it. The operator of the loader tried to scoot the 2x2x6 block into position using the bucket of the loader. The victim was on the ground in front of the bucket directing the loader operator, but the operator's vision was obstructed by the bucket. So the operator leaned to one side of the cab to better see the victim's directions. The bucket then detached from the loader and dropped on the victim, killing him. The operator suspected he had unintentionally touched the bucket release button in the process of leaning out.



### To prevent such an accident from occurring:

1. Assure operators of heavy equipment are properly trained on the safe operation of such equipment.
2. Consider adding covers to switches and other controls when the employer can reasonably anticipate accidental or unintentional contact.
3. Assure employees exposed to elevated loads recognize such hazards and position themselves in the safest position.